REMARKS

Claims 1, and 5-21 are presented in this application. The subject matter of former claims 2-4 has been generally represented as new claims 18-21.

Some confusion is presented in the outstanding Office Action in that the Examiner maintains a rejection of claims 1-17, when claims 2-4 have been cancelled. It is assumed that the characterization of the presently pending claims is correct as set forth above.

The Art Rejection

The examiner has rejected all claims as being anticipated by the Cao reference. The Cao reference is clearly deficient in disclosing all elements of the claim as previously set forth in the applicant's last response. The deficiency of the Cao patent is apparent for the reasons set forth herein and the rejection should therefore be withdrawn.

The Examiner's rejection combination fails to teach or suggest , much less disclose the features of the presently amended claims for a number of significant reasons. With respect to independent claim 1, this claim now requires the organic thin-film semiconducting device to be a rectifying diode or organic thin-film transistor. These structures are quite different from the light-emitting diode to which the Cao patent is directed.

The Examiner contends that the Cao patent discloses a method for the fabrication of an organic thin-film semiconducting device wherein the semiconductor device comprises an electrode arrangement with electrodes contacting a

semiconducting organic material including depositing a first layer of a conducting material modified by depositing a second layer of a conducting polymer having a work function higher than that of the first layer. Note that the claim also requires the depositing of a third layer of semiconducting organic material.

The semiconducting organic material of the Cao reference must be layer 16. Layer 16 is defined in Cao as an admixture of electroluminescent polymer and additives sandwiched between a transparent anode 14 and a cathode 18. This admixture is described in the first two paragraphs of column six of Cao as producing the active light-emitting layer of the LED. **The polymer grid 24 is asserted by the examiner as being the semiconductor element. However, this structure is conductive and can be the source of an electrical signal output as described at column 6, lines 22-34 of Cao. This grid may not be considered the third layer of semiconductor organic material as contended by the Examiner since it performs no semiconductor function, this function being performed by the layer 16 in Cao.**

Consequently, since the layer 24 may not be considered a semiconducting layer performing the diode function, this function necessarily being performed by layer 16, layer 16 may not be considered the recited second layer as asserted by the Examiner. Consequently, the Examiner's rejection may not properly be applied against the independent claim to render it anticipated.

The Examiner's rejection is further deficient for this reason as it recites the remaining limitations of the dependent claims. Consequently, the examiner is requested to reconsider and withdraw the outstanding rejection.

With regard to the Examiner's addition of the Staring reference to allegedly teach the limitations of claim 10, the Staring reference cannot correct the defects set forth above with respect to the independent claim. Consequently, reconsider and withdrawal of the outstanding Office Action and issuance of claim 1 and its dependent claims is earnestly solicited.

The New Claims

The subject matter of the previously cancelled claims 2-4 have been generally resubmitted as new claims 18-21 with varying scope. Independent claim 18 recites a method of fabrication of an organic thin-film rectifier diode with a high rectification ratio, the first and second layers together forming an anode of the rectifier diode. The Cao reference is inadequate to teach or suggest this method claim for the reason set forth above.

For all of the above-stated reasons, all pending claims have been shown allowable over the references applied by the Examiner. Consequently, the Examiner is respectfully requested to reconsider and withdraw his rejections and pass these claims to Issue in the present application.

The Finality of the Office Action is Traversed

Traversal of the finality of the Examiner's Office Action is respectfully requested. The amendments to claim 1 were present in claims 2-4 of the original claim set, which amendments were incorporated into their independent claim without addition. Consequently, the incorporation of these dependent claims into the independent claim

prevents these amendments from properly being considered amendments necessitating a new ground of rejection since the limitation newly added to this claim were formerly present in the original claims. Consequently, the Examiner is respectfully requested to reconsider and withdraw the finality of the outstanding Office Action, or in the alternative, to enter the attached amendments for the purposes of appeal.

Should there be any outstanding issues in the present application, the Examiner is invited to contact the undersigned at (703) 205-8000 in Northern Virginia, in order to discuss these issues.

If necessary, the Commissioner of hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGE MADE

IN THE CLAIMS:

The claims have been amended as follows:

1. (Amended) A method in the fabrication of an electrode structure for an organic thin-film semiconducting device, wherein the semiconducting device is a rectifying diode with a high rectification ratio of an organic thin-film transistor or a hybrid organic/inorganic thin-film transistor [comprises an electrode arrangement with electrodes contacting a semiconducting organic material, and wherein the method is characterized by] comprises

[depositing] forming a first layer of a base metal [conducting material selected from the group consisting of calcium, manganese, aluminum, nickel, copper and silver or] a semiconducting material [selected from the group consisting of silicon, germanium, and gallium arsenide] or as a combination of a base metal [conducting] and a semiconducting material [in the form of a patterned or non-patterned layer on an insulating substrate, such that at least a portion of the substrate is covered by the first layer],

depositing a second layer of a conducting polymer on the first layer, said conducting polymer being selected among conducting polymers with a work function greater than the work function of the first layer, such that the real work function of the electrode structure in any case becomes equal to the work function of the selected conducting polymer, and providing the electrode structure in the semiconducting device such that the second layer contacts at least a portion of an active organic semiconductor material in said semiconducting device.

modifying the work function of the conducting and/or semiconducting material of the first layer by depositing a second layer of a conducting polymer with a work function higher than that of the material in the first layer such that the layer of the conducting polymer mainly covers the first layer or is conformal with the latter, whereby the combination of the first layer and second layer constitutes the anode of the electrode arrangement and the work function of the anode becomes substantially equal to that of the conducting polymer,

depositing a third layer of semiconducting organic material on top of the anode, and optionally and in case only a portion of the substrate is covered by the anode, also above at least some of the portion of the substrate not covered by the anode, and

depositing a patterned or non-patterned fourth layer of a metal on the tope of the third layer, whereby the fourth layer constitutes the cathode of the electrode arrangement.

5. A method according to claim 1, [characterized] wherein depositing the second layer is performed by depositing the second layer as a dispersion from a dispergent or as a dissolved material from a solution.

6. A method according to claim 1, [characterized] wherein depositing the second layer is performed by depositing the second layer in a melt application process.

7. A method according to claim 1, wherein the step of depositing the second layer [characterized by] selects[ing] the conducting polymer in the second layer [on] as a doped conjugated polymer.

8. A method according to claim 7, [characterized by selecting] wherein the conjugated polymer among poly(3,4-dioxyethylene thiophene) (PEDOT), a copolymer which includes the monomer 3,4-dioxyethylene thiophene; substituted poly(thiophenes), substituted poly(pyrroles), substituted poly(anilines) or copolymers thereof.

9. A method according to claim 7, wherein the step of depositing the second layer [characterized by] selects[ing] the dopant for the conjugated polymer as poly(4-styrene sulphonate) (PSS).

10. A method according to claims 7, wherein the step of depositing the second layer [characterized by] selects[ing] as the doped conjugated polymer [as] poly(3,4-ethylenedioxythiophene) (PEDOT) doped with poly(4-styrene sulphonate) (PSS).

11. A method according to claim 1, wherein the step of depositing the third layer [characterized by] selects[ing] the semiconducting organic material in the third layer among conjugated polymers, or crystalline, polycrystalline, microcrystalline and amorphous organic compounds.

12. A method according to claim [2]11, wherein the step of depositing the third layer [characterized by] selects[ing] the conjugated polymer in the third layer among poly(2-methoxy, 5-(2'-ethylhexyloxy)-1,4-phenylene vinylene) (MEH-PPV) or poly(3-hexylthiophene) (P3HT).

13. A method according to claim [1]18, wherein the step of depositing the fourth layer [characterized by] selects[ing] the metal of the fourth layer among metals which have a lower work function than that of the anode.

14. A method according to claim 13, wherein the step of depositing the fourth layer [characterized by] selects[ing] the metal of the fourth layer as the same as the metal selected for the first layer.

15. A method according to claim 14, wherein the step of depositing the fourth layer [characterized by] selects[ing] aluminum as the metal of the fourth layer.

Claims 18-21 have been added.